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UNITED STATES PATENT AND TRADEMARK OFFICE

Ex parte JUNICHI UENO

Before JOHN C. KERINS, STEVEN D.A. McCARTHY and
EDWARD A. BROWN, *Administrative Patent Judges*.

DECISION ON APPEAL

The Appellant appeals under 35 U.S.C. § 134 from the Examiner's final decision rejecting claims 11 and 19-31. The Examiner rejects claims 11 and 19-31 under 35 U.S.C. § 112, first paragraph, for failure to comply with the written description requirement; claims 11, 19, 23, 27 and 31 under 35 U.S.C. § 102(b) as being anticipated by Susumu (JP H10-180623 A, publ. Jul. 7, 1998); claims 11, 19, 21, 23, 25, 27, 29 and 31 under 35 U.S.C.

§ 103(a) as being unpatentable over Susumu; and claims 20, 22, 24, 26, 28 and 30 under § 103(a) as being unpatentable over Susumu and Fuminari (JP H10-202511 A, publ. Aug. 4, 1998). Claims 1-10, 12-18 and 32-34 are cancelled. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

Claim 11 is the sole independent claim on appeal:

11. A wafer-holding carrier which is used when holding wafers between an upper turn table and a lower turn table to which polishing pads are attached, and polishing both side of the wafers by a polishing agent, wherein

the carrier has polishing agent-passing holes for passing the polishing agent through as well as wafer-holding holes for containing and holding the wafers, and

the total area of the polishing agent-passing holes occupies more than 20% and 30% or less of a main surface of the carrier, and

each of the polishing agent-passing holes has a circular shape and a diameter of 5 mm – 30 mm.

ISSUES

The Appellant argues the rejections of method claims 27 and 29 separately from the rejections of the other claims on appeal. (*See* App. Br. 18-22). Otherwise, the Appellant argues the claims rejected under each ground of rejection as a group. Only issues and findings of fact contested by the Appellant will be addressed. *See Ex Parte Frye*, 94 USPQ2d 1072, 1075-76 (BPAI 2010). Furthermore, the Board does not review procedural

issues or engage in the supervision of Examiners. *See In re Hengehold*, 440 F.2d 1395, 1403 (CCPA 1971).

First, does the Specification provide an adequate written description to convey to one of ordinary skill in the art that the Appellant possessed the subject matter of claim 11 as of the filing date? (*See App. Br. 7-15*).

Second, does Susumu disclose a wafer-holding carrier in which the total area of the polishing agent-passing holes occupies more than 20% and 30% or less of a main surface of the carrier? (*App. Br. 15*).

Third, do the evidence and technical reasoning underlying the rejection of claim 11 adequately support the conclusion that the subject matter of claim 11 would have been obvious from the teachings of Susumu?

First Issue

ANALYSIS

“When the applicant adds a claim or otherwise amends his specification after the original filing date . . . the new claims or other added material must find support in the original specification.” *TurboCare Div. of Demag Delaval Turbomachinery Corp. v. General Elec. Co.*, 264 F.3d 1111, 1118 (Fed. Cir. 2001). More specifically, the specification, abstract, drawing and original claims must be such as to have clearly allowed one of ordinary skill in the art as of the filing date to recognize that the Appellant invented what is claimed in the amended claim. *Ariad Pharmas., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010)(en banc). As the

Appellant points out, this support may be inherent rather than express. (App. Br. 12-13). Nevertheless, “[i]n order for a disclosure to be inherent, ‘the missing descriptive matter must necessarily be present in the [original] application’s specification such that one skilled in the art would recognize such a disclosure.’” *TurboCare Div.* at 1119 (quoting *Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1159 (Fed. Cir. 1998)).

The Appellant contends that the Specification describes a subgenus of wafer-holding carriers in which the total area of the polishing agent-passing holes of a carrier occupies more than 20% and 30% or less of a main surface of the carrier because the Specification describes:

(1) a genus of wafer-holding carriers in which the total area of the polishing agent-passing holes occupies no less than 15%, but no more than 30%, of the main surface of the carrier (See, e.g., Spec. 7, ll. 6-18; Spec. 8, ll. 11-17; Spec. 29, ll. 1-15; Abstract, ll. 1-14; original claim 1);

(2) an example of a wafer-holding carrier in which the total area of the polishing agent-passing holes occupies approximately 29.59%, of the main surface of the carrier (Spec. 18, ll. 19-25); and

(3) an example of a wafer-holding carrier in which the total area of the polishing agent-passing holes occupies approximately 28.60%, of the main surface of the carrier (Spec. 28, ll. 7-18).

A Specification does not describe a subgenus as a matter of law merely by describing a genus encompassing the subgenus and two examples falling within the subgenus. See *In re Smith*, 458 F.2d 1389, 1395 (CCPA

1 1972)(“[I]t cannot be said that such a subgenus is necessarily always
2 implicitly described by a genus encompassing it and a species upon which it
3 reads.”).

4 We find that the Specification fails to provide a written description of
5 the subgenus of wafer-holding carriers in which the total area of the
6 polishing agent-passing holes occupies more than 20% and 30% or less of a
7 main surface of the carrier. Our finding is based on the following subsidiary
8 findings.

9 The Specification consistently discloses the genus of wafer-holding
10 carriers in which the total area of the polishing agent-passing holes of each
11 carrier occupies no less than 15%, but no more than 30%, of the main
12 surface of the carrier. (*See, e.g.*, Spec. 7, ll. 6-18; Spec. 8, ll. 11-17; Spec.
13 29, ll. 1-15; Abstract, ll. 1-14; original claim 1). Two of the four example
14 wafer-holding carriers disclosed by the Specification fall within the genus
15 described in the Specification but not the subgenus recited in representative
16 claim 11. (*See* Spec. 17, l. 13 – 18, l. 3 (15.18%) and Spec. 26, l. 8-17
17 (17.23%)). The Appellant has not identified any passage of the
18 Specification which speaks of 20% as a lower bound on the total area of the
19 main surface occupied by polishing agent-passing holes. This lack of
20 description would have indicated as of the filing date that the Appellant
21 regarded the genus described in the Specification rather than the subgenus
22 recited in representative claim 11 as their invention.

23 The Specification provides technical reasons why the lower bound of
24 the genus should be 15% and the upper bound of the genus should be 30%.
25 (Spec. 7, l. 19 – 8, l. 5; Spec. 8, ll. 11-17; *see also* Spec. 18, ll. 4-17;
26 Abstract, ll. 8-14). The Specification does not appear to provide a technical

1 reason why one of ordinary skill in the art might define any subgenus within
2 the genus, much less the specific subgenus of wafer-holding carriers in
3 which the total area of the polishing agent-passing holes occupies more than
4 20% and 30% or less of a main surface of the carrier. The absence of a
5 technical reason why one might define a subgenus of wafer-holding carriers
6 in which the total area of the polishing agent-passing holes occupies more
7 than 20% and 30% or less of a main surface of the carrier would have
8 implied that the Appellant had not invented the subgenus as of their filing
9 date.

10 The Specification discloses two examples of wafer-holding carriers
11 falling within a subgenus in which the total area of the polishing agent-
12 passing holes occupies more than 20% and 30% or less of a main surface of
13 the carrier. When these examples are read in context, however, they would
14 not have allowed one of ordinary skill in the art to recognize that the
15 Appellant invented the subgenus recited in representative claim 11. The
16 example disclosed at page 18, lines 19-25, in which the total area of the
17 polishing agent-passing holes occupies approximately 29.59% of the main
18 surface of the carrier, immediately follows a paragraph explaining why the
19 upper limit on the total of the polishing agent-passing holes should be 30%.
20 A reader coming upon the example disclosed at page 18, lines 19-25 likely
21 would interpret the example as illustrative of the upper limit of 30% rather
22 than as indicative of a significantly smaller lower limit of 20%.

23 The Specification compares the performance of the example disclosed
24 at page 28, lines 7-18, in which the total area of the polishing agent-passing
25 holes occupies approximately 28.60% of the main surface of the carrier, to
26 the performance of a comparative example in which the total area of the

1 polishing agent-passing holes occupies approximately 14.30% of the main
2 surface of the carrier. The percentage 14.30% falls well below the recited
3 lower limit of 20%. The comparison does not imply that the Appellant had
4 invented a subgenus of wafer-handling carriers in which the total area of the
5 polishing agent-passing holes occupies more than 20% and 30% or less of a
6 main surface of the carrier. Based on these subsidiary findings, we find that
7 the Specification does not comply with the written description requirement
8 with respect to the subject matter of representative claim 11.

9 *In re Wertheim*, 541 F.2d 257 (CCPA 1976), cited by the Appellant
10 (see App. Br. 14), is distinguishable. In *Wertheim*, the applicant claimed a
11 process for preparing a powdered coffee extract which comprised adding
12 inert gas to a concentrated aqueous extract of roast coffee containing about
13 35% to 60% by weight of soluble coffee solids. *Id.* at 259 and 261-62. A
14 parent application to which the applicants claimed priority disclosed
15 concentrating the aqueous extract to about 25% to 60% by weight of soluble
16 coffee solids. In addition, the parent application disclosed specific
17 embodiments in which the aqueous extract was concentrated to 36% and to
18 50% by weight of coffee solids. *Id.* at 262. The predecessor of our
19 reviewing court cited *Smith* affirmatively and held that “[m]ere comparison
20 of ranges is not enough, nor are mechanical rules a substitute for an analysis
21 of each case on its facts to determine whether an application conveys to
22 those skilled in the art the information that the applicant invented the subject
23 matter of the claims.” *Id.* at 263. The court held “[t]hat what appellants
24 claim as patentable to them is less than what they describe as their invention
25 is not conclusive if their specification also reasonably describes that which
26 they do claim.” *Id.*

Here, as discussed previously, the Specification does not reasonably describe the subject matter of representative claim 11. The facts here are distinguishable from those in *Wertheim*. In *Wertheim*, the applicants in their specification provided a description of specific concentration levels (36% and 50%) which reasonably delimited the range of 35% to 60%. Here, the specific examples disclosed by the Specification reasonably delimit the genus of wafer-holding carriers in which the total area of the polishing agent-passing holes of each carrier occupies to no less than 15%, but no more than 30%, of the main surface of the carrier but not a subgenus in which the total area of the polishing agent-passing holes occupies more than 20% and 30% or less of a main surface of the carrier. We sustain the rejection of claims 11 and 19-31 under 35 U.S.C. § 112, first paragraph, for failure to comply with the written description requirement.

Second Issue

The Appellant contends that Susumu fails to anticipate representative claim 11 because Susumu fails to describe a wafer-holding carrier in which each of the polishing agent-passing holes has a circular shape and a diameter of 5 mm – 30 mm. (App. Br. 18). The Examiner does not appear to cite any passage of Susumu describing a wafer-holding carrier in which each of the agent-passing holes has a circular shape and a diameter of 5 mm – 30 mm. Susumu does disclose that “the opening area of one through-hole is ideally, for example, 60 cm² or less.” (Susumu, para. [0013]). As the Appellant points out, this disclosure corresponds to a diameter of 87.4 mm or less. The range disclosed by Susumu deviates by more than a trivial amount at its upper end from the range recited in claim 11. Since Susumu does not

disclose a wafer-holding carrier in which each of the agent-passing holes has a circular shape and a diameter of 5 mm – 30 mm, we do not sustain the rejection of claims 11, 19, 23, 27 and 31 under § 102(b) as being anticipated by Susumu.

Third Issue

The Appellant identifies three ways in which the wafer-holding carrier of claim 11 allegedly differs from that described by Susumu: (1) the total area of the agent-passing holes in Susumu's carrier occupies 0.8% to 20% of a main surface of the carrier (Susumu, para. [0009]), whereas the total area of the polishing agent-passing holes recited in claim 11 occupies more than 20% and 30% or less of a main surface of the carrier; (2) each of the agent-passing holes has a circular shape and a diameter of 87.4 mm or less (Susumu 8, lines 1-3), whereas each of the polishing agent-passing holes has a circular shape and a diameter of 5 mm – 30 mm; and (3) Susumu describes using Susumu's carrier in a lapping process (Susumu, para. [0001]) rather than a polishing process. (*See App. Br.* 19-20). Despite these differences, the wafer-holding carrier of claim 11 would have been obvious from the teachings of Susumu.

Figure 4 of Susumu depicts "a relationship between the percentage of the total surface area of the carrier 13 occupied by the total opening area of the above-mentioned through-holes 19 and the occurrence of a cracked wafer by lapping employing this carrier 13." (Susumu, para. [0014]). Susumu's disclosure indicates recognition that the percentage of the total surface area of the carrier 13 occupied by the agent-passing holes was a result-effective variable. The drawing figure indicates that the incidence of

1 cracking is relatively low when the total area of the polishing agent-passing
2 holes is low compared to the main surface of the carrier. The incidence of
3 cracking as depicted in Figure 4 begins to rise when the total area of the
4 agent-passing holes is slightly below 20% of the main surface of the carrier.
5 The incidence of cracking continues to rise when the total area of the agent-
6 passing holes is 20% of the main surface of the carrier or greater.

7 Susumu teaches that the passage of slurry or agent through the agent-
8 passing holes reduces the scratching of the lower wafer surface during a
9 lapping process. (Susumu, para. [0009]). Susumu also teaches that the
10 incidence of cracking increases when the total area of the agent-passing
11 holes is 20% of the main surface of the carrier or greater because the
12 increase in the total area of the agent-passing holes weakens the carrier so
13 that the carrier may deform during lapping. (*Id.*) Despite this latter
14 teaching, Figure 4 of Susumu indicates that the 20% upper limit on the total
15 area of the polishing agent-passing holes is not critical in the sense of
16 marking a sharp or step-wise increase in the incidence of cracking.

17 Since the range disclosed by Susumu, that is, the total area of the
18 agent-passing holes in Susumu's carrier occupies 0.8% to 20% of a main
19 surface of the carrier, touches the range recited in claim 11; and since the
20 range recited in the claim is not critical, it would have been *prima facie*
21 obvious for one of ordinary skill in the art to increase the percentage of total
22 area occupied by the agent-passing holes slightly above 20% in order to
23 increase the flow of slurry to the lower surface of the wafer during a lapping
24 process. *See In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990). The
25 Appellants do not argue either that one of ordinary skill in the art would
26 have been incapable of increasing the percentage of total area occupied by

1 the agent-passing holes slightly above 20% or that one of ordinary skill in
2 the art familiar with the teachings of Susumu would have been unable to
3 predict the results of doing so.

4 Likewise, it would have been prima facie obvious for one of ordinary
5 skill in the art to choose an optimum range of agent-passing hole diameter
6 within the disclosed range of 87.4 mm or less. The Appellants do not argue
7 either that one of ordinary skill in the art would have been incapable of
8 creating agent-passing holes of 5 mm – 30 mm in diameter or that the results
9 of providing a carrier with holes of this size would have been unpredictable.

10 Finally, assuming for purposes of this appeal only that the recitation
11 “polishing both sides of the wafers by a polishing agent” in the preamble of
12 claim 11 as well as the recitation “for passing the polishing agent through”
13 in the body of claim 11 limit the claimed wafer-holding carrier, the
14 Examiner finds that both lapping and polishing are processes which typically
15 utilize abrasive slurries in frictional contact with wafers to smooth or
16 planarize surfaces of the wafers. (Ans. 6). The Appellants correctly point
17 out that the terms lapping and polishing do not refer to identical processes,
18 since polishing agents may differ from lapping agents. (See Reply Br. 8).
19 Nevertheless, the Examiner’s findings support the inference that the two
20 processes are similar.

21 “[I]f a technique has been used to improve one device, and a person of
22 ordinary skill in the art would recognize that it would improve similar
23 devices in the same way, using the technique is obvious unless its
24 application is beyond his or her skill.” KSR Int’l Co. v. Teleflex, Inc., 550
25 U.S. 398, 417 (2007). It would have been obvious to improve lapping
26 processes by using a wafer-holding carrier in which the total area of the

1 polishing agent-passing holes occupies more than 20% and 30% or less of a
2 main surface of the carrier, and each of the polishing agent-passing holes has
3 a circular shape and a diameter of 5 mm – 30 mm.

4 The Appellant offers no evidence of unexpected results or other
5 secondary indicia of non-obviousness with respect to the claimed wafer-
6 holding carrier. We sustain the rejection of claims 11, 19, 21, 23, 25 and 31
7 under 35 U.S.C. § 103(a) as being unpatentable over Susumu. Since the
8 Appellant argues the patentability of claims 27 and 29 under § 103(a) solely
9 on the basis that Susumu describes a lapping device and not a polishing
10 device (*see* App. Br. 20-21), we sustain the rejection of claims 27 and 29
11 under § 103(a) as being unpatentable over Susumu. Since the Appellants
12 argue the patentability of claims 20, 22, 24, 26, 28 and 30 under § 103(a)
13 solely on the basis that Fuminari fails to remedy deficiencies which the
14 teachings of Susumu do not show (*see* App. Br. 21-22), we sustain the
15 rejections of claims 20, 22, 24, 26, 28 and 30 under § 103(a) as being
16 unpatentable over Susumu and Fuminari.

17
18 DECISION

19 We AFFIRM the Examiner's decision rejecting claims 11 and 19-31.
20 No time period for taking any subsequent action in connection with
21 this appeal may be extended under 37 C.F.R. § 1.136(a) (2007).

22
23 AFFIRMED

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27 Klh